

CLAIMS:

1. A nucleic acid isolate having a nucleotide sequence coding for a polypeptide which includes the amino acid sequence shown in Figure 4.
- 5 2. Nucleic acid according to claim 1 wherein the coding nucleotide sequence includes the coding nucleotide sequence shown in Figure 3.
- 10 3. Nucleic acid according to claim 1 wherein the coding nucleotide sequence includes a mutant, allele, derivative or variant, by way of addition, substitution, insertion and/or deletion of one or more nucleotides, of the coding nucleotide sequence shown
- 15 in Figure 3.
4. A nucleic acid isolate having a nucleotide sequence coding for a polypeptide which includes an amino acid sequence which is a mutant, allele,
- 20 derivative or variant sequence of the GAI amino acid sequence of the species *Arabidopsis thaliana* shown in Figure 4, or is a homologue of another species or a mutant, allele, derivative or variant thereof, wherein said mutant, allele, derivative, variant or homologue
- 25 differs from the amino acid sequence shown in Figure 4 by way of insertion, deletion, addition and/or substitution of one or more amino acids, wherein expression of said nucleic acid in a plant results in

AMENDED SHEET

inhibition of growth of the plant, the inhibition being antagonised by gibberellin (GA).

5. Nucleic acid according to claim 4 wherein over-
5 expression of said nucleic acid in a plant confers a dwarf phenotype on the plant, which dwarf phenotype is correctable by treatment with GA.

6. Nucleic acid according to claim 4 or claim 5
10 wherein said polypeptide includes the 17 amino acid sequence underlined in Figure 4.

7. Nucleic acid according to claim 4 or claim 5
15 wherein said polypeptide includes a contiguous sequence of 17 amino acid residues in which at least 10 residues have similarity with a residue in the corresponding position in the 17 amino acid sequence underlined in Figure 4.

20 8. A nucleic acid isolate having a nucleotide sequence coding for a polypeptide which includes an amino acid sequence which is a mutant, allele, derivative or variant sequence of the GAI amino acid sequence of the species *Arabidopsis thaliana* shown in
25 Figure 4, or is a homologue of another species or a mutant, allele, derivative or variant thereof, wherein said mutant, allele, derivative, variant or homologue differs from the amino acid sequence shown in Figure 4

by way of insertion, deletion, addition and/or substitution of one or more amino acids, wherein expression of said nucleic acid complements a GAI null mutant phenotype in a plant, such phenotype being
5 resistance to the dwarfing effect of paclobutrazol.

9. Nucleic acid according to any of claims 4 to 8 wherein said plant is *Arabidopsis thaliana*.

10 10. A nucleic acid isolate having a nucleotide sequence coding for a polypeptide which includes the amino acid sequence encoded by nucleic acid according to claim 8 save for deletion of the 17 amino acid sequence underlined in Figure 4 or a contiguous 17
15 amino acid sequence in which at least 10 residues have similarity with a residue in the corresponding position in the 17 amino acid sequence underlined in Figure 4.

20 11. A nucleic acid isolate having a nucleotide sequence coding for a polypeptide which includes an amino acid sequence which is a mutant, allele, derivative or variant sequence, by way of insertion, deletion, addition and/or substitution of one or more
25 amino acids, of the GAI amino acid sequence of the species *Arabidopsis thaliana* shown in Figure 4 or a homologue of another species, wherein expression of said nucleic acid in a plant confers a phenotype on

0911513.072504
102270.271660

the plant which is gibberellin-unresponsive dwarfism.

12. Nucleic acid according to claim 11 wherein the polypeptide includes the amino acid sequence shown in Figure 4 with the underlined 17 amino acids deleted.

13. Nucleic acid according to claim 12 wherein the coding nucleotide sequence includes the coding nucleotide sequence shown in Figure 3 but with the nucleotides which encode the amino acids underlined in Figure 4 deleted.

14. Nucleic acid according to claim 12 wherein the coding nucleotide sequence includes a nucleotide sequence which is a mutant, allele, derivative or variant sequence, by way of insertion, deletion, addition and/or substitution of one or more nucleotides, of the nucleotide sequence shown in Figure 3 but with the nucleotides which encode the amino acids underlined in Figure 4 deleted.

15. Nucleic acid according to claim 11 wherein the polypeptide has an amino acid sequence which is a mutant, allele, derivative or variant sequence of the amino acid sequence shown in Figure 4 by way of deletion of the 17 amino acids underlined in Figure 4 and the addition, insertion, substitution and/or deletion of one or more amino acids.

16. Nucleic acid according to any of claims 11 to 15 wherein said plant is *Arabidopsis thaliana*.

17. A nucleic acid having a nucleotide sequence
5 coding for a polypeptide which includes an amino acid sequence which is a mutant, allele, derivative or variant sequence, by way of insertion, deletion, addition and/or substitution of one or more amino acids, of the GAI amino acid sequence of the species
10 *Arabidopsis thaliana* shown in Figure 4, wherein the polypeptide has the amino acid sequence shown in Figure 6b, Figure 6d, Figure 6f or Figure 6h.

18. Nucleic acid according to claim 17 wherein the
15 coding nucleotide sequence is that shown in Figure 6a, Figure 6c, Figure 6e or Figure 6g.

19. Nucleic acid according to any of claims 1 to 18 further including a regulatory sequence for expression
20 from said coding nucleotide sequence.

20. Nucleic acid according to claim 19 wherein the regulatory sequence includes an inducible promoter.

21. A nucleic acid isolate having a nucleotide
25 sequence complementary to a sequence of at least 14 contiguous nucleotides of the coding sequence or sequence complementary to the coding sequence of

Under control of a regulatory sequence for anti-sense trans-

58

and

nucleic acid according to any of claims 1 to 15
suitable for use in anti-sense or sense regulation
("co-suppression") of expression said coding sequence.

- 5 22. ~~Nucleic acid according to claim 21 which is DNA~~
and wherein said complementary nucleotide sequence is
under control of a regulatory sequence for anti-sense
transcription.
- 10 23. Nucleic acid according to claim 22 wherein the
regulatory sequence includes an inducible promoter.
24. A nucleic acid vector suitable for transformation
of a plant cell and including nucleic acid according
15 to any preceding claim.
25. A host cell containing heterologous nucleic acid
according to any preceding claim.
- 20 26. A host cell according to claim 25 which is
microbial.
27. A host cell according to claim 25 which is a
plant cell.
- 25 28. A plant cell according to claim 27 having
~~heterologous said nucleic acid within its genome.~~

29. A plant cell according to claim 28 having more than one said nucleotide sequence per haploid genome.

30. A plant cell according to any of claims 27 to 29 which is comprised in a plant, a plant part or a plant propagule, or an extract or derivative of a plant.

31. A method of producing a cell according to any of claims 25 to 30, the method including incorporating said nucleic acid into the cell by means of transformation.

32. A method according to claim 31 which includes recombining the nucleic acid with the cell genome nucleic acid such that it is stably incorporated therein.

33. A method according to claim 31 or claim 32 which includes regenerating a plant from one or more transformed cells.

34. A plant comprising a plant cell according to any of claims 27 to 29.

35. A plant which is a sexually or asexually propagated off-spring, clone or descendant of a plant according to claim 31, or any part or propagule of said plant, off-spring, clone or descendant.

0931513.072501
T02270.ETST660

36. A part or propagule, or extract or derivative of a plant according to claim 35.

37. A method of producing a plant, the method
5 including incorporating nucleic acid according to any of claims 1 to 24 into a plant cell and regenerating a plant from said plant cell.

38. A method according to claim 37 including sexually
10 or asexually propagating or growing off-spring or a descendant of the plant regenerated from said plant cell.

39. A method of influencing a characteristic of a
15 plant, the method including causing or allowing expression from heterologous nucleic acid according to any of claims 1 to 3 within cells of the plant.

40. A method of influencing a characteristic of a
20 plant, the method including causing or allowing expression of from heterologous nucleic acid according to any of claims 4 to 7 within cells of the plant.

41. A method of influencing a characteristic of a
25 plant, the method including causing or allowing expression of from heterologous nucleic acid according to claim 8 or claim 9 within cells of the plant.

42. A method of influencing a characteristic of a plant, the method including causing or allowing expression of from heterologous nucleic acid according to any of claims 10 to 16 within cells of the plant.

5

43. A method of influencing a characteristic of a plant, the method including causing or allowing transcription from nucleic acid according to any of claims 21 to 23 within cells of the plant.

10

44. Use of nucleic acid according to any of claims 1 to 3 in the production of a transgenic plant.

45. Use of nucleic acid according to any of claims 4 to 7 in the production of a transgenic plant.

15

46. Use of nucleic acid according to claim 8 or claim 9 in the production of a transgenic plant.

47. Use of nucleic acid according to any of claims 10 to 16 in the production of a transgenic plant.

20

48. Use of nucleic acid according to any of claims 21 to 23 in the production of a transgenic plant.

0091513.073501
T0220 E1660